

Hearing Aid Tester Hearing aids often develop malfunctions that are not detected by the wearer. This is particularly true when the wearers are school-age children. Studies of selected groups showed that from 30 to more than 50 percent of schoolchildren were not getting adequate benefit from their hearing aids because of unrecognized malfunctions, usually low or dead batteries. This can be serious because hearing

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impairment retards a child's educational progress.

NASA technology incorporated in the Hearing Aid Malfunction Detection Unit (HAMDU), the device pictured, is expected to provide an effective countermeasure to the children's hearing aid problem. A patent license has been awarded to a minority-owned firm, Hopkins International Company, a subsidiary of H. H. Aerospace Design Co., Inc., Elmford, New York. The company plans early commercial availability of its version of the device.

Worn by the user as an adjunct to the hearing aid, HAMDU is a miniaturized, battery-powered system which monitors the hearing aid's operation. Twice every hour, HAMDU's electrical circuitry performs a check of the hearing aid's battery, amplifier and receiver cord. If, for example, battery voltage is too low, or if the amplifier's sound signal is distorted, the circuitry triggers an indicator light. In classroom use, a teacher would immediately be alerted that the child's hearing aid was malfunctioning or was turned off by accident or design.

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HAMDU operates continuously while the hearing aid is in use. Relatively inexpensive, it eliminates the need for periodic inspections requiring removal of the hearing aid from the child. The automatic check takes only half a second and has no effect on hearing aid performance.

Johnson Space Center and Martin Marietta Aerospace-Denver built prototype units which were thoroughly tested in the laboratory and in actual use by schoolchildren. The latter tests (photo) were conducted at the Callier Center of the University of Texas-Dallas. Several children wore the HAMDU units during classroom instruction and malfunctions were induced in their hearing aids. In 200 hours of schoolroom evaluation, HAMDU reported all malfunctions within an hour of their occurrence and triggered no false alarms.

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